

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (Currently Amended) A method of treating cancer, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a modulator of cell cycle checkpoint activation G1 and/or S phase checkpoint activator to a subject in need thereof, wherein said cell cycle checkpoint activation modulator checkpoint activator:
 - a) is an compound with a molecular weight of less than 5 kD;
 - b) does not damage DNA and does not stabilize microtubules; and
 - c) is administered in a dosage effective manner, wherein said dosage is determined by measuring the unscheduled expression of a member of the E2F family of transcription factors, selected from the group consisting of E2F-1, E2F-2 and E2F-3, and wherein said dosage is sufficient to selectively activate a checkpoint in cancerous cells, but not affect the cytotoxicity or viability of non-cancerous cells to treat said cancer in said subject; wherein said cell cycle checkpoint activation modulator checkpoint activator is not β -lapachone.

2-3. (Cancelled)

4. (Currently Amended) The method of claim 1, wherein said cell cycle checkpoint activation modulator checkpoint activator inhibits cellular proliferation.

5. (Currently Amended) The method of claim 1, wherein said cell cycle checkpoint activation modulator checkpoint activator induces apoptosis.

6-8. (Cancelled)

9. (Currently Amended) The method of claim 1, wherein said cell cycle checkpoint activation modulator checkpoint activator is selected from the group consisting of 3,4-dihydro-2,2-dimethyl-3-(3-methyl-2-butenyl)-2H-naphtho[1,2-b]pyran-5,6-dione, 3,4-dihydro-2,2-

dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione and 3,4-dihydro-4,4-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione.

10. (Previously Presented) The method of claim 1, wherein said subject is human.
 11. (Currently Amended) The method of claim 1, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered parenterally.
 12. (Currently Amended) The method of claim 1, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered intravenously.
 13. (Currently Amended) The method of claim 1, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered orally.
 14. (Currently Amended) The method of claim 1, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered topically.
 15. (Currently Amended) The method of claim 1, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered in combination with a chemotherapeutic agent.
 16. (Previously Presented) The method of claim 15, wherein said chemotherapeutic agent is selected from the group consisting of microtubule targeting drugs, topoisomerase poison drugs and cytidine analogue drugs.
 17. (Currently Amended) The method of claim 15, wherein said chemotherapeutic agent is selected from the group consisting of Taxol® (paclitaxel), lovastatin, ~~munesine~~ mimosine, tamoxifen, gemcitabine, araC, 5-fluorouracil (5-FU), methotrexate (MTX), docetaxel, vincristin, vinblastin, nocodazole, teniposide, etoposide, adriamycin, epothilone, navelbine, camptothecin, daunorubicin, dactinomycin, mitoxantrone, amsacrine, epirubicin and idarubicin.
- 18-34. (Cancelled)

35. (Currently Amended) A method of treating cancer, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a modulator of cell cycle checkpoint activation G1 and/or S phase checkpoint activator to a subject in need thereof, wherein said cell cycle checkpoint activation modulator checkpoint activator:

- a) is an compound with a molecular weight of less than 5 kD;
- b) does not damage DNA and does not stabilize microtubules; and
- c) is administered in a dosage effective manner, wherein said dosage is determined by measuring the unscheduled expression of the transcription factor E2F-1, and wherein said dosage is sufficient to selectively activate a checkpoint in cancerous cells, but not affect the cytotoxicity or viability of non-cancerous cells to treat said cancer in said subject; and, elevates the level of the transcription factor E2F-1;

wherein said cell cycle checkpoint activation modulator checkpoint activator is not β -lapachone.

36-37. (Cancelled)

38. (Currently Amended) The method of claim 35, wherein said cell cycle checkpoint activation modulator checkpoint activator inhibits cellular proliferation.

39. (Currently Amended) The method of claim 35, wherein said cell cycle checkpoint activation modulator checkpoint activator induces apoptosis.

40-42. (Cancelled).

43. (Currently Amended) The method of claim 35, wherein said cell cycle checkpoint activation modulator checkpoint activator is selected from the group consisting of consisting of 3,4-dihydro-2,2-dimethyl-3-(3-methyl-2-butenyl)-2H-naphtho[1,2-b]pyran-5,6-dione, 3,4-dihydro-2,2-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione and 3,4-dihydro-4,4-dimethyl-2H-naphtho[1,2-b]thiopyran-5,6-dione.

44. (Previously Presented) The method of claim 35, wherein said subject is human.

45. (Currently Amended) The method of claim 35, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered parenterally.
46. (Currently Amended) The method of claim 35, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered intravenously.
47. (Currently Amended) The method of claim 35, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered orally.
48. (Currently Amended) The method of claim 35, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered topically.
49. (Currently Amended) The method of claim 35, wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is administered in combination with a chemotherapeutic agent
50. (Previously Presented) The method of claim 49, wherein said chemotherapeutic agent is selected from the group consisting of microtubule targeting drugs, topoisomerase poison drugs and cytidine analogue drugs.
51. (Currently Amended) The method of claim 49, wherein said chemotherapeutic agent is selected from the group consisting of Taxol® (paclitaxel), lovastatin, ~~mimosine~~ mimosine, tamoxifen, gemcitabine, araC, 5-fluorouracil (5-FU), methotrexate (MTX), docetaxel, vincristin, vinblastin, nocodazole, teniposide, etoposide, adriamycin, epothilone, navelbine, camptothecin, daunorubicin, dactinomycin, mitoxantrone, amsacrine, epirubicin and idarubicin.
52. (Cancelled)
53. (Currently Amended) A method of inducing apoptosis of cancer cells in a subject, wherein said cancer is prostate cancer, colon cancer, breast cancer, pancreatic cancer or lung cancer, comprising administering a ~~modulator of cell cycle checkpoint activation~~ checkpoint

activator to subject in need thereof, wherein said ~~cell cycle checkpoint activation modulator~~
checkpoint activator:

- a) does not damage DNA and does not stabilize microtubules; and
- b) is administered in a therapeutically effective amount to induce activate a checkpoint
and induce apoptosis of said cancer cells but not affect the cytotoxicity or viability of
non-cancerous cells in said subject,

wherein said ~~cell cycle checkpoint activation modulator~~ checkpoint activator is not β-lapachone.

54. (Cancelled)

55. (Withdrawn) A method for screening for a cell cycle checkpoint activation modulator, comprising

- a) contacting a cancer cell with a candidate compound, and
- b) measuring the degree (or extent) of elevation of a member of the E2F family of transcription factors, selected from the group consisting of E2F-1, E2F-2 and E2F-3, if present, wherein an increase in an E2F family member in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis.

56. (Withdrawn) A cell cycle checkpoint activation modulator identified by the method of claim 55.

57. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 55 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.

58. (Withdrawn) A method for screening for a cell cycle checkpoint activation modulator, comprising
- a) contacting a cancer cell with a candidate compound, and
 - b) measuring the degree (or extent) of elevation of the transcription factor E2F-1, if present, wherein an increase in E2F-1 in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis
59. (Withdrawn) A cell cycle checkpoint activation modulator identified by the method of claim 58.
60. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 58 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.
61. (Withdrawn) A method for screening for a cell cycle checkpoint activation modulator, comprising
- a) contacting a cell with a candidate compound, and
 - b) measuring the degree (or extent) of apoptosis, if present, wherein an increase in apoptosis in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis.
62. (Withdrawn) A cell cycle checkpoint activation modulator identified by the method of claim 61.
63. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 61 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.
64. (Withdrawn) A method for screening for a compound effective for treating cancer, comprising

- a) contacting a cancer cell with a candidate compound, and
- b) measuring the degree (or extent) of elevation of a member of the E2F family of transcription factors, selected from the group consisting of E2F-1, E2F-2 and E2F-3, if present, wherein an increase in an E2F family member in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis.

65. (Withdrawn) A compound effective for treating cancer identified by the method of claim 64.

66. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 64 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.

67. (Withdrawn) A method for screening for compound effective for treating cancer, comprising

- a) contacting a cancer cell with a candidate compound, and
- b) measuring the degree (or extent) of elevation of the transcription factor E2F-1, if present, wherein an increase in E2F-1 in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis

68. (Withdrawn) A compound effective for treating cancer identified by the method of claim 67.

69. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 67 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.

70. (Withdrawn) A method for screening for a compound effective for treating cancer, comprising

- c) contacting a cell with a candidate compound, and
- d) measuring the degree (or extent) of apoptosis, if present, wherein an increase in apoptosis in the presence of said compound, as compared to the absence of the compound, indicates that the compound is an inducer of apoptosis.

71. (Withdrawn) A compound effective for treating cancer identified by the method of claim 70.

72. (Withdrawn) A method of treating cancer, comprising administering a modulator of cell cycle checkpoint activation identified by the method of claim 70 to a subject in need thereof, wherein said cell cycle checkpoint activation modulator treats said cancer.

73. (New) The method of claim 1, wherein said compound is an orthonaphthoquinone.

74. (New) The method of claim 35, wherein said compound is an orthonaphthoquinone.